

CLAIMS

1. Improved apparatus (1) for carbamate decomposition and ammonia and carbon dioxide stripping from urea solutions, of the type comprising:

5 - a stripper (2) including a substantially cylindrical shell (3) closed at opposed ends by respective bottoms (A, B) and equipped in the proximity thereof with inlet and outlet openings (N1, N2, N3, N4, N5, N6) of stripping fluids, heat exchange (4) and control means and devices  
10 for the stripping step;

- a structure (6) for supporting said shell (3) in vertical position;

characterized in that the shell (3) of the stripper (2) can be fitted onto said structure (6) in two distinct  
15 vertical positions rotated by 180° with respect to a horizontal axis of symmetry (x-x) of said stripper.

2. Apparatus according to claim 1, characterized in that said inlet and outlet openings (N1, N2, N3, N4, N5, N6) of the stripping fluids are symmetrical in the stripper  
20 (2) with respect to said symmetry axis (x-x).

3. Apparatus according to claim 1, characterized in that said shell (3) is externally equipped, in the proximity of said bottoms, with support elements (7) arranged symmetrically with respect to the symmetry axis (x-x).

25 4. Apparatus according to claim 1, characterized in that said heat exchange (4) and control means and devices of the stripping step are arranged in the stripper shell symmetrically with respect to said symmetry axis (x-x).

5. Apparatus according to claim 1, characterized in that  
30 it comprises connection elements between said inlet and outlet openings (N1, N2, N3, N4, N5, N6) and

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corresponding inner parts of the stripper arranged symmetrically with respect to said symmetry axis (x-x).

6. Apparatus according to claim 1, characterized in that said horizontal symmetry axis (x-x) is defined by the intersection of a middle horizontal plane (P) of the  
5 stripper with a diametral vertical plane (Q) of the stripper.

7. Apparatus according to claim 6, characterized in that said inlet and outlet openings (N1, N2, N3, N4, N5, N6)  
10 of the stripping fluids are nozzles symmetrically arranged with respect to said symmetry axis (x-x), in which respective symmetrical pairs of nozzles lay on corresponding planes (S) parallel to each other and perpendicular with respect to the diametral vertical  
15 plane (Q) of the stripper, the nozzles of a respective pair being symmetrical with respect to the point of intersection between said symmetry axis (x-x) and the corresponding lying plane (S) of the nozzles.

8. Method for increasing the service life of an apparatus  
20 for carbamate decomposition and ammonia and carbon dioxide stripping from synthesis urea aqueous solutions containing them, said apparatus comprising:

- a stripper (2) including a substantially cylindrical shell (3) closed at opposed ends by respective bottoms  
25 (A, B) and equipped in the proximity thereof with inlet and outlet openings (N1, N2, N3, N4, N5, N6) of stripping fluids, heat exchange (4) and control means and devices for the stripping step;

- a structure (6) for supporting said shell (3) in  
30 vertical position;

characterized in that it provides for a rotation by 180° of said shell (3) with respect to a horizontal symmetry axis (x-x) of the stripper, after a predetermined time

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period, when a predetermined degree of wear of an upper portion of said heat exchange means has been reached.

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